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2823

ifw

00862.022498

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
: Examiner: B. Kebede
TAKAO YONEHARA, ET AL.)
: Group Art Unit: 2823
Application No.: 10/059,144)
:
Filed: January 31, 2002)
:
For: METHOD OF MANUFACTURING)
THIN-FILM SEMICONDUCTOR :
DEVICE (As Amended)) June 15, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

LETTER

Sir:

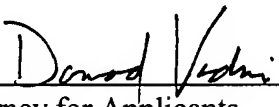
Enclosed for the Examiner's consideration is a copy of an Office Action dated March 10, 2004, in co-pending U.S. Application No. 10/059,171, and copies of Office Actions dated November 5, 2002 and March 27, 2003, in Application No. 10/059,116, now U.S. Patent No. 6,677,183.

The documents cited in the Office Actions were previously cited in the Information Disclosure Statements dated January 9, 2003, and May 25, 2004. In addition, U.S. Application Nos. 10/059,171 and 10/059,116, and U.S. Patent No. 6,677,183 are already of record in this case. Accordingly, a Form PTO-1449 does not accompany this Letter.

No fee is believed due; however, the Commissioner is hereby authorized to charge any fee which may be required in connection with this paper to Deposit Account No. 06-1205.

Applicants' undersigned attorney may be reached in our Washington, D.C., office at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicants
Damond E. Vadnais
Registration No. 52,310

FITZPATRICK, CELLA, HARPER & SCINTO
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DC_MAIN 168844v1



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,116	01/31/2002	Kiyofumi Sakaguchi	00862.022497	8415

5514 7590 11/05/2002

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

LE, THAO X

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

FORMAL DRAWING
CORRECTION REQUIRED
FILED

FILE NO. 00162.022497
ATTORNEY WSN
DATE 2/5/03
DOCKETED 11/11/03 JN

Office Action Summary

Application No.

10/059,116

Examiner

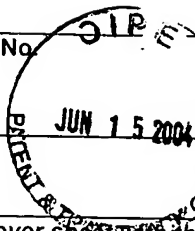
Thao X Le

Applicant(s)

SAKAGUCHI ET AL.

Art Unit

2814



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 is/are allowed.
- 6) ☐ Claim(s) 1-11 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 12 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions ✓

1. Applicant's election with traverse of claims 1-19 and 21 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that claims are not so different, thus there is no burden in examining of both group. This is not found persuasive because the Applicant has not provided a convincing argument that materially different processes would not be suitable in producing the recited device. It is submitted that the materially different processes would be suitable. Finally the search is not coexisting as evidenced by the different classes for the process and product as cited in the restriction mailed on 07/15/02.

The requirement is still deemed proper and is therefore made FINAL.

Specification ✓

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings ✓

3. Figures 4A-4C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Double Patenting ✓

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-7, 13-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/059,144 (US Pub 2002/0100914) in view of Applicant Admitted Prior Art (APA).

The subject matter claimed in the instant application is fully disclosed in the referenced co-pending application and would be covered by any patent granted on that co-pending

application since the referenced co-pending application and the instant application are claiming common subject matter, as follows:

Both applications claim the method of manufacturing thin-film semiconductor device comprising a semiconductor film having a semiconductor element and/or semiconductor integrated circuit, the separation step of separating the member. But the co-pending application does not disclose the step of forming kerfs from the semiconductor film side of the member. However, the APA discloses the step of forming kerfs 19 from the semiconductor film side of the member prior to the separation step. Therefore, it would have been obvious to use the kerfs formation teaching of APA with co-pending application in order to perform the separation step.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

Art Unit: 2814

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1, 8-11 and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6465329 to Glenn.

Regarding to claim 1, Glenn discloses a method of manufacturing a thin-film semiconductor device, comprising: the step of preparing a member having, on a separation layer 34, a semiconductor film 3 having a semiconductor element and/or semiconductor integrated circuit (IC) 2, fig. 7, the step of forming kerfs 32 from the semiconductor film side of the member, and the separation step of, after the kerfs formation step, separating a desired region of the semiconductor element and/or semiconductor IC from the member, fig. 8.

Regarding to claims 8-11, 16-17 Glenn discloses the method wherein the kerfs 32 are formed in the semiconductor film 3, in the processed of forming the semiconductor element, wherein the kerks are formed by dicing, column 7 line 34, wherein the bottom portions thereof are located in the separation layer, wherein the desired region is formed into a plurality of chips by the separation step, fig. 7.

Allowable Subject Matter

8. Claim 21 is allowed.

- The prior art does not disclose all the limitations in claim 21 including forming a cracks in the separation layer to separate each of the partition chip regions from the base.

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9. Claims 12 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With respect to claim 12, the prior art fail to disclose all the limitation in claim 12 including the member has the separation layer and semiconductor film on a semiconductor region, and the kerfs are formed such that bottom portions thereof are located at the interface between the separation layer and the semiconductor region.
- With respect to claim 19, the prior art fail to disclose all the limitation in claim 19 including the member is formed again using a remaining member that is left after the desired region is separated from the member.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is 703-306-0208. The examiner can normally be reached on M-f from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Application/Control Number: 10/059,116
Art Unit: 2814

Page 7

Thao X. Le
October 28, 2002

A handwritten signature in black ink, appearing to read 'Phat X. Cao', written in a cursive style.

PHAT X. CAO
PRIMARY EXAMINER

Notice of References Cited

Application/Control No.

10/059,116

Applicant(s)/Patent Under
Reexamination
SAKAGUCHI ET AL.

Examiner

Thao X Le

Art Unit

2814

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6465329	10-2002	Glenn	438/462
	B	US-2002/0076904	06-2002	Imler, William R.	438/462
	C	US-6,075,280	06-2000	Yung et al.	257/620
	D	US-6,186,384	02-2001	Sawada, Hiroshi	225/2
	E	US-6,136,668	10-2000	Tamaki et al.	438/462
	F	US-2002/0100941	08-2002	Yonehara et al.	257/98
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PTO 1233 (modified)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)
(Use several sheets if necessary)

ATTY DOCKET NO.

00862.022497

APPLICATION NO.

10/059,116

APPLICANT

KIYOFUMI SAKAGUCHI, et al.

FILING DATE

January 31, 2002

GROUP

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
TL	6,190,937	02/20/2001	Nauagawa, et al.	438	67	
	6,222,513	03/10/1998	Howard, et al.	345	84	
	6,258,698	07/10/2001	Iwasaki, et al.	438	455	
	6,306,729	10/23/2001	Sauaguchi, et al.	438	458	
	6,331,208	12/18/2001	Nishida, et al.	117	89	
	6,342,433	01/29/2002	Ohmi, et al.	438	455	
	6,382,292	05/07/2002	Ohmi, et al.	156	584	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
	EP 1 122 794	08/08/2001	Europe			
	EP 858 110	06/12/1998	Europe			
	EP 849 788	06/24/1998	Europe			
TL	JP 11-316397	11/16/1999	Japan	G02F		Abstract

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

TL	Shimoda, T., et al: "Surface Free Technology By Laser Annealing (SUFTLA)" International Electron Devices Meeting 1999. IEDM. Technical Digest. Washington, DC, Dec. 5-8, 1999, New York, NY: IEEE, US, Aug. 1, 1999 (1999-08-01), pages 289-292, XP000933199 ISBN: 0-7803-5411-7.
EXAMINER	DATE CONSIDERED 17 Oct 02

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Sheet 1 of 1

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.
00862.022497

APPLICATION NO.
Not Yet Assigned

LIST OF REFERENCES CITED BY APPLICANT(S)
(Use several sheets if necessary)

APPLICANT

Kiyofumi Sakaguchi, et al.

FILING DATE

Currently herewith

GROUP

Not Yet Assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
TL	5,206,749	4/27/93	Zavracky et al.	359	59	
I	5,256,562	10/26/93	Vu et al.	437	86	
	5,811,348	9/22/98	Matsushita, et al.	438	455	
	6,107,213	8/22/00	Tayanaka, et al.	438	762	
	5,985,742	11/16/99	Henley, et al.	438	515	
TL	5,856,229	1/5/99	Sakaguchi, et al.	438	406	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
TL	9-312349	12/2/97	Japan			Abstract
TL	886 300	12/23/98	EP			

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER

DATE CONSIDERED

12 Oct-02

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



UNITED STATES PATENT AND TRADEMARK OFFICE



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,116	01/31/2002	Kiyofumi Sakaguchi	00862.022497	8415

5514 7590 03/27/2003

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

LE, THAO X

ART UNIT PAPER NUMBER

2814

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

00862.022497
CAN
6/27/03
4/2/03
4/7/03

Office Action Summary



Application No.	Applicant(s)	
10/059,116	SAKAGUCHI ET AL.	
Examiner	Art Unit	
Thao X Le	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-12, 14-15, 17-19, 21 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 13 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 12, 19 and 21 are withdrawn in view of the newly discovered reference(s) to Tamaki. Rejections based on the newly cited reference follow.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A method of separation of semiconductor device.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation ‘ after forming a protective film on inner walls of pores in the porous layer’ is unclear.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2814

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 6, 8-12, 14-15, 17-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6136668 to Tamaki et al.

Regarding to claim 1, 21, Tamaki discloses a method of manufacturing a thin film semiconductor device fig. 40-42, comprising: a step of preparing a member having on a separation layer 31, a semiconductor film1 having a semiconductor element and/or semiconductor integrated circuit 3, a step of forming kerfs from the semiconductor film side of the member, fig. 41, and a separation step of, after the kerf formation step, separating a desire region of the semiconductor element, column 2 line 25-50.

But Tamaki does not expressly disclose the method comprises forming cracks in the separation layer.

However, Tamaki discloses the separation layer 31 is dissolved to separate the semiconductor chip, column 2 line 42. Therefore, it would have been obvious in this

dissolving process that cracks are being formed in order to separate the semiconductor device from the plate.

Regarding to claims 2, 14-15, 17, Tamaki discloses the method comprises the step of injecting a fluid into the kerfs; the fluid fills the grooves by dipping in organic solvent, fig. 42.

Regarding to claims 3, 6, 8-12, 18-19 Tami discloses the method further comprises forming a porous layer 31 on the surface of a semiconductor substrate, forming the semiconductor film 1 on the porous layer 31 and forming the semiconductor element 3, fig. 40, wherein the semiconductor substrate 1 is a single-crystal silicon, column 1 line 32, wherein the kerfs are formed in the semiconductor film by etching, fig. 41, column 2 line 40, wherein the kerfs are formed such that bottom portions thereof are located in the separation layer, fig. 41. Obviously the remaining member 21 can be re-used.

Allowable Subject Matter

5. Claims 5, 7, 13, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. With respect to claim 5 and 7, the prior art of record fails to disclose all the limitations of claim 5 and 7 including implanting ion from the surface side to predetermined depth to form the separation layer.

b. With respect to claims 13, 16 the prior art fail to disclose all the limitation in claim 13 including the separation step is performed by injecting a high-pressure fluid from the kerfs and static pressure.

Art Unit: 2814

Response to Arguments

6. Applicant's arguments with respect to claims 1-19 and 21 have been considered but are moot in view of the new ground(s) of rejection.

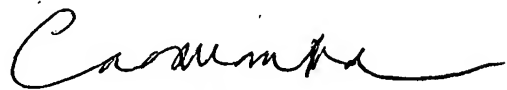
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is 703-306-0208. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Thao X. Le
March 7, 2003



PHAT X. CAO
PRIMARY EXAMINER

Notice of References Cited	Application/Control No. 10/059,116	Applicant(s)/Patent Under Reexamination SAKAGUCHI ET AL.	
	Examiner Thao X Le	Art Unit 2814	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,136,668	10-2000	Tamaki et al.	438/462
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,171	01/31/2002	Takao Yonehara	00862.022499	6512

5514 7590 03/10/2004

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

NGUYEN, THANH T

ART UNIT PAPER NUMBER

2813

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

00862.022499
GKN
6/10/04
3/16/04
3/23/04
GK

Office Action Summary

JUN 15 2004

Application No.

10/059,171

Applicant(s)

YONEHARA ET AL.

Examiner

Thanh T. Nguyen

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/31/02, 8/19/02, 1/10/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claim 10 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper mailed 2/15/03.

Applicant's election with traverse of Group I, claims 1-9 drawn to a method claims is acknowledged. The traversal is on the ground(s) that the subject matter of all claims 1-10 is sufficiently related that a thorough search for the subject matter of any one group of the claims would encompass a search for the subject matter of the remaining claims. This is not found persuasive because claims 10 would require further search and for the reason of the last Office Action. The requirement is still deemed proper and is therefore made FINAL.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copy has been received.

Information Disclosure Statement

The information disclosure statement filed on 1/31/02, 8/19/02, 1/10/03 has been considered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Oath/Declaration

Oath/Declaration filed on 1/31/02 has been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (U.S. Patent No. 5,757,456).

Referring to figures 5a-5d, Yamazaki et al. teaches a method of manufacturing a display device, comprising:

The step of preparing a member having, on a separation layer (32), a semiconductor film (34/35 silicon) having a first region with a switching element (8) and a second region with a peripheral circuit (7);

The step of forming an image display portion (18) on the first region; and

The separation step of separating the first and second regions from the member together with the image display portion (see figures 5c-5d, separating the peeling layer (32) and the substrate from the first and second regions).

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Regarding to claim 4, the member is obtained by forming the first and second regions on the surface of a substrate and implanting ions from the surface side to a predetermined depth to form the separation layer (see col. 7, lines 11-18).

Regarding to claim 7, the separation step is executed by injecting gas to or near a side surface of the separation layer (see figure 5c-5d, col. 7, lines 52-67, col. 8, lines 1-13).

Regarding to claim 8, separation step is executed under static pressure (see col. 7, lines 55-56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 5,757,456) as applied to claims 1, 7-8 above in view of Zhang (U.S. Patent No. 6,627,487).

Referring to figures 5a-5d, Yamazaki et al. teaches a method of manufacturing a display device, comprising:

The step of preparing a member having, on a separation layer (32), a semiconductor film (34/35 silicon) having a first region with a switching element (8) and a second region with a peripheral circuit (7);

The step of forming an image display portion (18) on the first region; and

The separation step of separating the first and second regions from the member together with the image display portion (see figures 5c-5d, separating the peeling layer (32) and the substrate from the first and second regions).

Regarding to claim 4, the member is obtained by forming the first and second regions on the surface of a semiconductor substrate and implanting ions from the surface side to a predetermined depth to form the separation layer (see col. 7, lines 11-18).

Regarding to claim 7, the separation step is executed by injecting gas to or near a side surface of the separation layer (see figure 5c-5d, col. 7, lines 52-67, col. 8, lines 1-13).

Regarding to claim 8, separation step is executed under static pressure (see col. 7, lines 55-56).

However, the reference does not teaches the semiconductor substrate is a single-crystal silicon substrate, and reuse the remaining member after the separation steps.

Zhang teaches forming a substrate by using a single-crystal silicon or glass (see col. 1, lines 14-17).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would substrate by using a single-crystal silicon instead of glass as in process of Yamazaki et al. as taught by Zhang because determining the optimum material for the layer only involved routine skill in the art.

It is obvious to reuse the remaining member after the separation step because it would reduced processing cost of forming the LCD.

Allowable Subject Matter

Claims 2-3, 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art taught or suggested the combination of forming a porous layer film on the member then forming a semiconductor film, and then forming the first and second regions incorporated into claim 1.

The additional references cited in form PTO-892 show further method of manufacturing a semiconductor film. Specifically references (Ishikawa, U.S. 5,582,963) are particularly relevant to claimed manufacture which recited in claims 1-9. Ishikawa teaches method of manufacturing a display device, comprising: The step of preparing a member having, on a separation layer (401), a semiconductor film (404) having a first region with a switching element (1406) and a second region with a peripheral circuit (1407); The step of forming an image display portion (1403) on the first region; and The separation step of separating the first and second regions from the member together with the image display portion (see figures 4a-4b). This reference is deemed relevant and should be carefully reviewed before any amendment is filed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by

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Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, can be reached on (571) 272-1702. The fax phone number for this Group is (703) 872-9306.

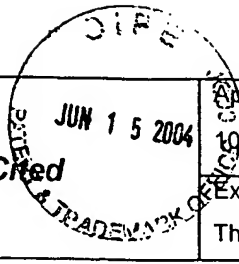
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (See MPEP 203.08).



Thanh Nguyen
Patent Examiner
Patent Examining Group 2800

TTN

Notice of References Cited



Application/Control No.

10/059,171

Applicant(s)/Patent Under

Reexamination

YONEHARA ET AL.

Examiner

Thanh T. Nguyen

Art Unit

2813

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,682,963	01-2004	Ishikawa, Akira	438/149
	B	US-5,757,456	05-1998	Yamazaki et al.	349/151
	C	US-6,627,487	09-2003	Zhang, Hongyong	438/166
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. 00862.022499		APPLICATION NO. Not Yet Assigned	
APPLICANT Takao Yonehara, et al.				FILING DATE Currently herewith		GROUP Not Yet Assigned	

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
TN	5,206,749	4/27/93	Zavracky et al.	359	59	<div style="border-left: 1px solid black; border-right: 1px solid black; height: 100px; width: 100%;"></div>	
	5,256,562	10/26/93	Vu et al.	437	86		
	5,811,348	9/22/98	Matsushita, et al.	438	455		
	6,107,213	8/22/00	Tayanaka, et al.	438	762		
	5,985,742	11/16/99	Henley, et al.	438	515		
TN	5,856,229	1/5/99	Sakaguchi, et al.	438	406		
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT	
TN	9-312349	12/2/97	Japan	X	X	Abstract	
TN	886 300	12/23/98	EP			—	
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
EXAMINER <i>[Signature]</i>				DATE CONSIDERED 3/4/04			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. 00862.022499		APPLICATION NO. 10/059,171	
APPLICANT TAKAO YONEHARA, et al.							
FILING DATE January 31, 2002						GROUP 2871	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
TW	6,190,937	02/20/2001	Nauagawa, et al.	438	67	X	
	6,222,513	03/10/1998	Howard, et al.	345	84		
	6,258,698	07/10/2001	Iwasaki, et al.	438	455		
	6,306,729	10/23/2001	Sauaguchi, et al.	438	458		
	6,331,208	12/18/2001	Nishida, et al.	117	89		
	6,342,433	01/29/2002	Ohmi, et al.	438	455		
TW	6,382,292	05/07/2002	Ohmi, et al.	156	584		
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
TW	EP	1 122 794	08/08/2001	Europe	X	X	X
	EP	858 110	08/12/1998	Europe			
	EP	849 788	06/24/1998	Europe			
TW	JP	11-316397	11/16/1999	Japan			
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
TW		Shimoda, T., et al: "Surface Free Technology By Laser Annealing (SUFTLA)" International Electron Devices Meeting 1999. IEDM. Technical Digest. Washington, DC, Dec. 5-8, 1999, New York, NY: IEEE, US, Aug. 1, 1999 (1999-08-01), pages 289-292, XP000933199 ISBN: 0-7803-5411-7.					
EXAMINER				DATE CONSIDERED 3/4/04			

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FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)		ATTY DOCKET NO. 00862.022499.	APPLICATION NO. 10/059,171
APPLICANT TAKAO YONEHARA, et al.			
FILING DATE January 31, 2002			GROUP 2871

U.S. PATENT DOCUMENTS							
OWNER INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
TW	6,075,280	06/13/00	Yung et al.	257	620	X	
	6,136,668	10/24/00	Tamaki, et al.	438	462		
	6,186,384	02/13/01	Sawada	225	2		
	6,465,329	10/15/02	Glenn	438	462		
	2002/0076904	06/20/02	Imler	438	462		
TW	2002/0100941	08/01/02	Yonehara, et al.	257	359		

FOREIGN PATENT DOCUMENTS							
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT		

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)		

EXAMINER <i>han</i>	DATE CONSIDERED 3/4/04
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.